Appendix E: Data Quality Tools -Tables

Security Assessment Questionnaire

WBS	Specific Control Objectives and Techniques	Policy	Procedures	Implemented	Tested	Integrated	COMMENT
Management Controls							
	Risk Management *OMB Circular A-130, III*						
1.1	**Critical Element:** Is risk periodically assessed?						
1.1.1	Is the current system configuration documented, including links to other systems? *NIST SP 800-18*						
1.1.2	Are risk assessments performed and documented on a regular basis or whenever the system, facilities, or other conditions change? *FISCAM SP-1*						
1.1.3	Has data sensitivity and integrity of the data been considered? *FISCAM SP-1*						
1.1.4	Have threat sources, both natural and manmade, been identified? *FISCAM SP-1*						
1.1.5	• Has a list of known system vulnerabilities, system flaws, or weaknesses that could be exploited by the threat sources been developed and maintained current? *NIST SP 800-30*						
1.1.6	Has an analysis been conducted that determines whether the security requirements in place adequately mitigate vulnerabilities? *NIST SP 800-30*						

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FMEA Analysis

Failure Modes and Effect Analysis (FMEA)

Process Step	Potential Failure Mode	Potential Failure Effects	Severity	Potential Causes	Occurrence	Current Controls	Detectability	Score
What is the Process step under investigation?	In what ways does the Process Step go wrong?	What is the impact on the Key Output Variables or internal requirements?	How severe is the effect to the customer?	What causes the Key Input to go wrong?	How often does cause of Failure Mode occur?	What are the existing controls and procedures (inspections and test) that prevent either the cause or the Failure Mode?	How well can you detect cause or Failure Mode?	Score = Severity * Occurrence * Detectability

Severity:
1 = None
4 = Moderate
7 = High
10 = Extended Shutdown

Occurrence:
1 = Almost Never
4 = Occasionally
7 = Frequently
10 = Almost Always

Detectability:
1 = Excellent
2 = Some leaks
3 = Frequent Leaks
10 = Almost Undetectable

FMEA SSIM Example

Failure Modes and Effect Analysis (FMEA)

Process Step	Potential Failure Mode	Potential Failure Effects	Severity	Potential Causes	Occurrence	Current Controls	Detectability	Score
Records are submitted to FSA systems with incorrect identifiers	Systems other than CPS and the PIN site do not verify SSN numbers.	Invalid Student borrowers can be created. (A student could potentially have multiple SSNs in FSA).	7	Lack of a SSN match in COD, DLCS, DMCS, and NSLDS	4	No automatic verification of SSN. Manually have to look up borrower and fix information.	3	84

Appendix E: Data Quality Tools - Tables

Data Quality Scoring Table

Data Sample Set	Criteria with Weights				Score	
	Percent of Blank Name Fields	Percent of Duplicate Entries	Percent of Blank Address Fields	Percent of Data with Incorrect Format		**Is Data Quality Acceptable?**
	0.3	0.2	0.2	0.3		
A	0.6	1	0.4	0.6	2	Y
B	0.9	1.6	0.6	2.1	4.3	Y
C	1.8	2.4	1.2	2.7	6.3	N

(Percentage out of total data points exhibiting defect) x (Weight)=(6%) x (0.3)

Overall Data Quality Score must be below 5 to be acceptable

Decision Matrix Solution Assessment

Solution Option	Criteria with Weights					Overal Score
	ROI	Deployment Speed	System Impact	Ease of Implementation	Customer Satisfaction	
	0.3	0.2	0.1	0.3	0.1	
A	2.4	1.6	0.8	2.4	0.8	5.6
B	3	2	1	3	1	7
C	1.8	1.2	0.6	1.8	0.6	4.2

(Sum of voted ranks) x weight of metric [ex. (3+1+1+1)x0.3]

Highest Score = Best Overall Option

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Control and Response Table

Control and Response							
Quality Issue:	#15 - FAFSA mis-loads		**Core Team:**	DQ Working Group #3		**Date (Orig):**	10/31/2003
Key Contact:	Mike Brown		**Phone:**	xxx-xxx-xxxx		**Date (Rev):**	11/01/2003
Process Step	**Resp.**	**Output**	**Input**	**Amount of Data**	**Frequency**	**Control Method**	**Response Plan**
Load FAFSA data	John Smith	Success	Applicant Data	50,000 rows	Daily	Field length validation, first and last name population.	Contact FAFSA technical analyst, verify system loads, etc